US-PAT-NO: 4469137

DOCUMENT-IDENTIFIER: US 4469137 A

TITLE: Liquid metering and mixing **aspirator** unit

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Abstract Text - ABTX (1):

A liquid metering and mixing **aspirator** including an elongate **aspirator** chamber with upstream and downstream ends, a small nozzle passage on an axis parallel with and radially offset from the axis and toward one side of the **aspirator** chamber and opening at the upstream end thereof adjacent said one side thereof, a liquid concentrate inlet port communicating with the upstream end portion of the **aspirator** chamber at the other side thereof, an enlarged vertical cylindrical mixing chamber with an upper end portion communicating with the downstream end of the **aspirator** chamber and a lower outlet end, water supply means connected with the nozzle passage and with a high pressure water supply and liquid concentrate supply means connected with the liquid concentrate port. The **aspirator** further includes liquid deflecting means at the upper end of the mixing chamber, spaced from the downstream end of the **aspirator** chamber and directing liquid flowing from the **aspirator** chamber radially and circumferentially downwardly in the mixing chamber.

TITLE - TI (1):

Liquid metering and mixing **aspirator** unit

Brief Summary Text - BSTX (1):

This invention has to do with an improved liquid metering and mixing **aspirator** unit.

Brief Summary Text - BSTX (8):

To date, the most effective and practical of those automatic mixing means provided by the prior art have utilized and have been characterized by **aspirator** devices or units which are suitably connected with pressurized water supplies (such as municipal water service systems) and which are connected with supplies of liquid beverage concentrate in or positioned near the dispensing machines. Such automatic mixing means commonly include an on and off valve to control the flow of water into and through the **aspirator** devices and the devices are such that the volumes of water caused to flow through and which are delivered by them draw and carry proportional volumes of the concentrates. In those instances where those thin, unsweetened beverage concentrates are being worked upon, effective mixing of the water and beverage concentrates occurs substantially instantly and automtically when the two liquids are brought together. On the other hand, in those instances where thick syrupy sweetened beverage concentrates are worked upon, the mere bringing together of the two liquids within the aspirators does not result in effective mixing of the liquids and separate and/or special means, downstream of the aspirators, must be provided to assure complete and proper mixing of the liquids.

Brief Summary Text - BSTX (10):

With few exceptions, those aspirators which have been adopted and used by the prior art (within those operating parameters inherent in the environments

in which they are used) are capable of drawing about 8", plus or minus 4" of
mercury. Such limited effectiveness of efficiency has resulted in a situation
wherein certain of the heavier and more viscuous syrup concentrates cannot be
effectively moved and worked upon by the automatic **aspirator** type mixing means
provided by the prior art and has resulted in a situation where the design and
arrangement of all of the components and/or parts of and for such water and
beverage concentrate mixing means are controlled and limited by the notable
inefficiency and ineffectiveness of the aspirators.

Brief Summary Text - BSTX (11):

Typically, the automatic **aspirator** type mixing means for beverage dispensing
machines which the prior art has provided have been designed and fabricated in
a step-by-step manner with each phase and/or function handled and performed by
some separate means or structure. As a result, such concentrate mixing means
have characteristically consisted of elongate series of components and parts
which are inherently slow to operate. That is, they are such that they must be
operated substantial periods of time before they are completely primed and
fully operational. The foregoing has materially limited the practical use of
automatic water and beverage concentrate **aspirator** type mixing means.

Brief Summary Text - BSTX (12):

It has been noted that in the art here concerned with, the prior art has not
come forth with one or more standard commercially available **aspirator** devices
or units which might be produced and offered for sale in the same manner that
standard commercially available valves and pressure regulators are produced and
made available. Instead, in each instance or case where an

aspirator is
required, a special **aspirator** unit or device is designed and produced, which
will effectively handle a particular type or class of concentrate and will
effectively deliver a desired proportional mix of concentrate and water when
said water is delivered to the structure within a limited range of pressure.
The foregoing is understood and believed to be the result of the fact that no
single **aspirator** or device has been designed, produced and offered for sale
which is sufficiently effective and efficient throughout a wide range of
operating parameters for universal application in this art and the art has
therefore been left to improvise and/or design special aspirators whenever the
provision and use of an **aspirator** is required.

Brief Summary Text - BSTX (14):
An object of my invention is to provide a new and improved **aspirator** type
water and beverage concentrate mixing unit for proportionally mixing water and
liquid beverage concentrate and to deliver beverage reconstituted thereby.

Brief Summary Text - BSTX (17):
Still another object and feature of the invention is to provide a mixing
unit of the character referred to which includes mixing means downstream of the
aspirator chamber to mix together the water and concentrate issuing from the
aspirator chamber and which utilizes the mass inertia of the liquids flowing
downstream through the construction to effect mixing thereof and to supplement
the primary aspirating function of the unit.

Brief Summary Text - BSTX (18):
It is an object and feature of the invention to provide a unit of the

general character referred to in the foregoing wherein said mixing means
downstream of the aspirating chamber to mix the liquids includes an enlarged,
elongate substantially vertical mixing chamber having an upper receiving end
communicating with the discharge end of the aspirating chamber and water jet
deflecting means in alignment with the jet of water flowing through and from
the **aspirator** chamber and directing that water downwardly into the mixing
chamber to establish and maintain a downward vortex flow of liquids through the
mixing chamber, to an open lower discharge end thereof.

Brief Summary Text - BSTX (19):

Another object of the invention is to provide an **aspirator** unit of the
character referred to above wherein the elongate mixing chamber is a downwardly
and radially inwardly tapered cylindrical chamber, the length, taper and
diameter of the lower end of which is such that vortex flow of liquids
downwardly through the mixing chamber is accelerated, the flow of liquid from
the chamber is unrestricted and the work energy of the water introduced into
and flowing through the construction is substantially spent when the liquids
reach said lower open end of the mixing chamber.

Brief Summary Text - BSTX (20):

Yet another object and feature of the invention is to provide an **aspirator**
type mixing unit of the character referred to which includes an on and off
valve to start and stop the flow of water which valve includes a valve chamber
adjacent and communicating with the nozzle tube or passage whereby said valve
and passage are sufficiently closely coupled so that upon opening and closing
of the valve, the **aspirator** commences and terminates operation substantially

instantly without appreciable delay.

Brief Summary Text - BSTX (21):
It is still another object and feature of the invention to provide an **aspirator** type mixing unit of the character referred to above which includes fluid metering valve means to adjust the metered volume of beverage concentrate flowing through the concentrate tube or passage when the unit is operating and/or a manually adjustable water pressure regulator donwstream of the on and off valve to regulate the pressure and resulting volume of water flowing into and through the unit whereby the unit can be easily and effectively adjusted to deliver different desired volumes of water and beverage concentrate when put into operation and as circumstances require.

Brief Summary Text - BSTX (22):
Finally, it is an object and feature of this invention to provide an **aspirator** type mixing unit of the character referred to in the foregoing which is made up of a very limited number of easy and economical to mass produce and assemble parts and which is such that it can be advantageously used in and made a standard part of most beverage mixing and dispensing machines and/or apparatus in which water and liquid beverage concentrates are combined and mixed together.

Detailed Description Text - DETX (4):
Referring to FIGS. 2 through 7 of the drawings, the body B is shown established of upper and lower body sections X and Y. The sections X and Y are injection molded plastic parts with flat horizontal opposing surfaces Z which are cemented or welded together and which are formed to establish a valve

chamber 20 for the on and off valve means V, a water supply passage 21 which
extends between and connects the chamber 20 and the quick disconnect fitting F,
an elongate cylindrical nozzle passage 22 with inlet and outlet ends, a
receiver chamber 23 between and communicating with the chamber 20 and the
passage 22, an elongate, cylindrical **aspirator** passage or chamber 24 on an axis
parallel with the passage 22 and with its inlet end communicating with the
outlet end of the passage 22, a concentrate inlet port 25 between and
communicating with the inlet end portion of the **aspirator** chamber 24 and the
metering valve A which is quick disconnected with the front side of the body B,
an elongate, cylindrical, vertical cavity 26 communicating with the outlet end
of the **aspirator** chamber 24 and with the upper end of the mixing tube T and
cooperating with said tube to define the upper end portion of the
aforementioned mixing chamber M. In addition to the foregoing, the structure
includes water jet deflecting means D at the upper end of the mixing chamber M
and within said cavity 26.

Detailed Description Text - DETX (5):

If considered in a piecemeal manner and/or as a mere catalog of parts, most
of the parts and portions of the structure recited above are likely to be found
in some **aspirator** type mixing units provided by the prior art. However, the
form, dispositioning and arrangement of the above recited parts is unique and
distinct from that which is taught and practiced by the prior art, as will be
apparent from a study of the drawings and as will be particularly noted and
described in the following.

Detailed Description Text - DETX (6):

It is to be particularly noted that the elongate, cylindrical nozzle passage 22 is notably smaller in diameter than the elongate, cylindrical **aspirator** chamber 24 and that its central longitudinal axis is radially offset from the central longitudinal axis of the chamber 24 so that the outlet end of the nozzle passage 22 occurs radially offset from the center of and at one-half of the inlet end of the chamber 24. In the case illustrated, the diameter of the passage 22 is substantially equal to the radius of the chamber 24 and occurs at or is aligned with the rear half of the chamber 24, with reference to the front and rear sides 12 and 13 of the body B.

Detailed Description Text - DETX (7):

With the above relationship of the nozzle passage 22 and **aspirator** chamber 24, when a jet of water is caused to flow from the outlet end of the passage 22 and into and through the chamber 24, the rear side of the jet of water is directed to flow along and is in contact with the rear side of the chamber 24. The surface effect between the jet of water and the surface of the chamber, at the rear side thereof, tends to hold and maintain a substantial portion of the jet of water contained or concentrated at and along the rear side of the chamber 24 and thereby maintains that portion of the water moving longitudinally through the chamber 24 at high velocity. The noted surface effect is also understood and believed to cause a substantial portion of the water (of the jet of water) to spread and/or fan out radially upwardly and forwardly and radially downwardly and forwardly about the rear half of the chamber 24 as it moves longitudinally therethough and toward the outlet or downstream end of the chamber 24. Such spreading or fanning of a portion of

the jet of water is understood and believed to establish an extensive surface area of water moving rapidly downwstream within the outlet end portion of the **aspirator** chamber. Such extensive surface area of moving water is particularly effected to establish a substantial minus pressure within the inlet portion of the **aspirator** chamber, at the front side thereof and at the concentrate inlet port 25, which, as noted above and as shown in the drawings, opens at the front side of the inlet end portion of the **aspirator** chamber 24.

Detailed Description Text - DETX (8):

In comparison tests made with the structure of this invention and with a similar test structure wherein the nozzle passage was arranged concentric with the **aspirator** chamber, the structure of this invention drew a minus pressure on liquid concentrate at the concentrate inlet port which was more than five inches of mercury greater than the minus pressure on the same concentrate at the inlet port of the test structure.

Detailed Description Text - DETX (9):

During the above noted tests, it was observed that the water and concentrate discharged from the outlet or downstream end of the **aspirator** chamber of the test structure was notably diffused and commingled and much of it appeared to travel at a slow rate while in the case of the structure embodying the present invention, a notable portion of the jet of water flowing from the discharge or downstream end of the **aspirator** chamber 24 was substantially undiffused and moved at high velocity. The remaining water was diffused and mixed with concentrate as it flowed from the **aspirator** chamber with greater density of concentrate at the front side of the chamber.

Detailed Description Text - DETX (10):
The above noted test results or observations not only suggest that superior results are attained in the structure of the invention by virtue of the noted surface effect between the jet of water and the surface of the **aspirator** chamber, but also suggest and have led me to understand and believe that in aspirators of the general character or class here concerned with, in which the nozzle passages are concentric with the **aspirator** chambers and the jets of water are in very close proximity to the concentrate inlet ports and are uncontained or unrestricted in any manner, the slow moving, heavy and viscous liquid concentrates drawn into the **aspirator** chambers by the minus pressures generated by the jets of water and which move into contact with the uncontained jets of water cause the jets of water to rapidly break up and diffuse, thus rapidly and wastefully expending a great portion of the energy of or within the jets of water to effect useless diffusion thereof.

Detailed Description Text - DETX (11):
Accordingly, in the present invention, by radially offsetting the nozzle passage 22 and jet of water to the side of the **aspirator** chamber 24 opposite the side thereof at which the concentrate inlet port 25 occurs, notably less work energy of or within the jet of water is wastefully expended to unnecessarily break up and diffuse the jet of water than is expended and wasted in common **aspirator** structures where the jets of water are concentric with the **aspirator** chambers.

Detailed Description Text - DETX (12):
In further considering the present invention, it is to be noted that the

upper one-half of the **aspirator** chamber 24 is extended axially downstream from the outlet end of the chamber 24 and into and across the downwardly disposed top surface of the cavity 26 to establish a downwardly opening water jet directing channel 30. The channel 30 continues from the **aspirator** chamber 24 into the cavity 26 to terminate at or near to the top center of the cavity and therefore, at or near the top center of the mixing chamber defined by said cavity and its related tube T. The downstream end of the cannel 30 is formed with a downwardly turned semi-spherical water deflecting surface 31. The channel 30 and deflecting surface 31 establish an effective and preferred form of deflecting means D, the purpose and function of which will be described in the following.

Detailed Description Text - DETX (13):

It is to be noted that the cavity 26, defining the upper end portion of the mixing chamber M, is substantially larger in diameter than the **aspirator** chamber 24 and is such that the portion of the mixing chamber established or defined thereby freely receives the liquids (water and concentrate) issuing from the **aspirator** chamber 24. The remainder or that portion of the mixing chamber M below the cavity 26 is defined by the tube T. The upper end portion of the tube is removably frictionally engaged in a downwardly and radially inwardly opening bore 33 at the bottom of the body B, about and below the cavity 26. The portion of the mixing chamber M defined by the tube is tapered downwardly and radially inwardly at from 2.degree. to 5.degree. and is shown as having a truncated lower open end. The lower open end is preferably no less in diameter than the diameter of the **aspirator** chamber so that free flow of

fluids from the chamber M is assured and/or so that the establishment of an undesirable back pressure in and through the construction will not develop.

Detailed Description Text - DETX (15):

When the mixing unit U that I provide is operating, a portion of the undiffused jet of water issuing from the downstream or outlet end of the **aspirator** chamber 24 is conducted and/or directed across the top of the chamber M in and by the channel 30 of the deflecting means D and is directed radially outwardly, downwardly, circumferentially clock-wise into the upper end of the chamber M by the deflecting surface 31. The water thus introduced into the upper end of the chamber establishes an induced vortex flow of liquids down through and about the interior surface of the chamber M. Due to the taper of the chamber, the induced vortex flow is accelerated or is at least maintained throughout the length of the chamber. The remainder of the diffused water and concentrate flowing from the **aspirator** chamber into the mixing chamber M is directed into and across the upper end portion of the chamber M to the wall or surface of the chamber and combines with the water directed downwardly and circumferentially in the chamber by the means D whereby all of the liquids flowing from the chamber 24 into the mixing chamber are combined and thoroughly mixed in the chamber M before they reach and flow from the lower open end of the chamber.

Detailed Description Text - DETX (18):

The above noted simple tests tended to clearly demonstrate the fact that the means D and mixing chamber M not only effectively mixed the water and concentrates flowing from the **aspirator** chamber 24, but

utilize that residual
work energy of the water flowing through and from the
aspirator chamber and
into the mixing chamber to further aspirate and more
effectively utilize the
work energy delivered into the construction by the inflowing
water.

Detailed Description Text - DETX (37):
Another important feature of my invention resides in the
fact that the body
B is established of two easy and economical to make and
assemble molded plastic
parts. The two parts of the body are relatively thin-walled
parts which are
lightweight and inexpensive to make. In the prior art, where
similar
block-like bodies are provided in **aspirator** type liquid
metering and mixing
means or devices, the bodies have been established of solid
blocks of material
and the various passages, chambers and ports therein have
been established by
suitable drilling and other machine operations. Such prior
art block-like
bodies have required the performing of thread-tapping
operations, the inserting
of plugs and the like. As a result of the above, such prior
art mixing and/or
aspirating block-like body structures have been excessively
costly to make and
unsuitable for mass production.

Detailed Description Text - DETX (39):
It is also to be noted that in practice, the valve means V
shown at the
right-hand end portion of the top side of the body B could be
repositioned to
occur at the right-hand end of the body B with its central
outlet passage 23 in
axial alignment with the nozzle passage 22, without changing
or departing from
the spirit of the invention. Further, the mixing chamber M
could be rearranged
to occur within and extend from the left end of the body B,
with its axis

parallel with the axis of the **aspirator** chamber 24, without departing from the
spirit of this invention. In such a case, the body would be turned so that
said left end or side would occur at or establish the bottom side of the body.

Claims Text - CLTX (1):

1. A liquid metering and mixing **aspirator** structure defining an elongate
substantially horizontal cylindrical **aspirator** chamber with an upstream inlet
end and a downstream outlet end, an elongate nozzle passage smaller in diameter
than the **aspirator** chamber on an axis parallel with and laterally offset from
the axis of and toward one side of the **aspirator** chamber and having its outlet
end communicating with the upstream end of the **aspirator** chamber adjacent said
one side thereof, an elongate liquid concentrate inlet port with an upstream
inlet end and with a downstream outlet end communicating with the upstream end
portion of the **aspirator** chamber at the other side thereof, an elongate
cylindrical vertically extending mixing chamber with a closed upper end and an
open lower end and larger in diametric extent and in flow capacity than the
aspirator chamber and through which liquids received from the **aspirator** chamber
flow by the force of gravity, the mixing chamber has an upper receiving end
portion extending transverse and communicating with the outlet end of the
apsirator chamber, water supply means connected with the inlet end of the
nozzle passage and connected with a high pressure water supply and liquid
concentrate supply means connected with the inlet end of the port and liquid
jet deflecting means at the upper end portion of the mixing chamber and
including a deflecting surface spaced downstream from the outlet end of the
aspirator chamber and positioned in the path of and disposed

to redirect
liquids flowing from the **aspirator** chamber radially inwardly into the mixing
chamber circumferentially and downwardly into vortex flow downwardly in and
through the mixing chamber wherein said water jet deflecting means includes an
elongate downwardly opening channel in a top surface of the mixing chamber
continuing radially inwardly from the outlet end of the **aspirator** chamber and
through which a portion of the liquids issuing from the outlet end of the
aspirator chamber is directed, the end of the channel remote from the **aspirator**
chamber terminates at the central portion of the mixing chamber and defines
said deflecting surface.

Claims Text - CLTX (2):
2. The liquid metering and mixing **aspirator** structure set forth in claim 1
wherein the said mixing chamber has a downwardly and radially inwardly tapered
cylindrical surface functioning to maintain vortex flow in the liquids flowing
downwardly and circumferentially relative thereto.

Claims Text - CLTX (3):
3. The liquid metering and mixing **aspirator** structure set forth in claim 1
wherein said liquid concentrate supply means includes a container remote from
said port and a supply of liquid concentrate in said container, a fluid
conducting coupling part at the inlet end of said port and an elongate suction
hose with one end connected with said coupling part and its other end opening
in said supply of liquid concentrate.

Claims Text - CLTX (4):
4. The liquid metering and mixing **aspirator** structure set forth in claim 1
wherein said water supply means includes an on and off valve

with an outlet
passage communicating with the inlet end of the nozzle
passage and an inlet
passage communicating with a water outlet opening of a water
pressure
regulator, said water pressure regulator has a water inlet
opening connected
with a high pressure water supply, said liquid concentrate
supply means
includes a container remote from said port and a supply of
liquid concentrate
in said container, a fluid conducting coupling part at the
inlet end of said
port and an elongate suction hose with one end connected with
said coupling
part and its other end opening in said supply of liquid
concentrate.

Current US Cross Reference Classification - CCXR (4):
239/310

US-PAT-NO: 6260772

DOCUMENT-IDENTIFIER: US 6260772 B1

TITLE: Dispensing and rinsing gun

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Brief Summary Text - BSTX (10):

A preferred embodiment dispensing gun for dispensing water received from a water supply and for dispensing a product diluted in the dispensing gun with water received from the water supply includes a handle, a water inlet, a water outlet, and a hose receiving member. A hose member includes a first channel and a second channel. The hose receiving member is operatively connected to a first channel of a hose member, and the first channel is in fluid communication with the water inlet. An **aspirator** is operatively connected to the second channel of the hose member and is in fluid communication with the water outlet. The **aspirator** includes an outlet. A water supply supplies the gun with water via the first channel of the hose member, and a product supply supplies the gun with product via the second channel of the hose member, wherein the **aspirator** creates a use solution of product diluted with water for the water outlet. The use solution exits the outlet of the **aspirator**. A nozzle is operatively connected to the water outlet to dispense water from the water outlet. A first valve is in fluid communication with the water outlet and the nozzle, and a second valve is in fluid communication with the water outlet and the **aspirator**. The first valve controls the flow of water via the first channel and the second valve controls the flow of water via the first channel

through the **aspirator**.
The first valve allows water to flow from said water outlet through the nozzle,
and the second valve allows water to flow from the water outlet into the
aspirator and the use solution created therein to flow through the outlet of
the **aspirator**.

Brief Summary Text - BSTX (11):
In another preferred embodiment, an apparatus for dispensing liquid diluent
and a liquid concentrate diluted with diluent includes a dispenser having an
inlet and an outlet. A hose member includes a first channel and a second
channel. The first channel interconnects a liquid diluent source to the inlet,
wherein liquid diluent flows from the liquid diluent source into the inlet and
out of the outlet. An **aspirator** is operatively connected to the outlet via the
second channel. The **aspirator** includes a liquid diluent inlet a liquid
concentrate inlet, and a dilute solution outlet. A control device operatively
connected to the **aspirator** controls the flow of liquid diluent from a source of
liquid diluent to the liquid diluent inlet. A nozzle is operatively connected
to the outlet for dispensing liquid diluent from the outlet. A first valve is
in fluid communication with the outlet and the nozzle and controls the flow of
liquid diluent out of the nozzle. A second valve is in fluid communication
with the outlet and the **aspirator** and controls the flow of dilute solution out
of the dilute solution outlet.

Brief Summary Text - BSTX (12):
In another preferred embodiment dispensing gun for dispensing water received
from a water supply and for dispensing a product diluted in the dispensing gun
with water received from the water supply, the dispensing gun

includes a handle, a water inlet, a water outlet, and a hose receiving member operatively connected to a first channel of a hose member. The first channel of the hose member is in fluid communication with the water inlet. An **aspirator** is in fluid communication with the water outlet, and the **aspirator** includes an outlet. A water supply supplies the dispensing gun with water via the first channel of the hose member. A product supply is in fluid communication with the **aspirator, wherein the aspirator** creates a use solution of product diluted with water from the water outlet, and the use solution exits the outlet of the **aspirator**. A first nozzle is operatively connected to the water outlet to dispense water from the water outlet; and a first valve is in fluid communication with the water outlet and the first nozzle, and a second valve is in fluid communication with the water outlet and the **aspirator**. The first valve controls the flow of water via the first channel and the second valve controls the flow of water via the first channel through the **aspirator**. The first valve allows water to flow from the water outlet through the first nozzle and the second valve allows water to flow from the water outlet into the **aspirator** and the use solution created therein to flow through the outlet of the **aspirator**.

Detailed Description Text - DETX (10):

Aspirators 148a and 148b commonly known in the art are inserted into first bore 126 and third bore 128, respectively, and a pistol nozzle 113 including a first segment 107 and a second segment 114 commonly known in the art is inserted into second bore 127. Aspirators 148a and 148b include a first end 150a and 150b having bores 151a and 151b that are in fluid

communication with
first tube 123 and third tube 125, respectively. Inlet port 149a is connected
to first channel and inlet port 149b is connected to the third channel of the
hose member to provide product to aspirators 148a and 148b. At the opposite
end of aspirators 148a and 148b are rings 152a and 152b and bores 153a and
153b. Bore 153a is in fluid communication with third tube 171 and bore 153b is
in fluid communication with first tube 169. Therefore, **aspirator** 148a is in
fluid communication with first cavity 172 and **aspirator** 148b is in fluid
communication with third cavity 174.

Claims Text - CLTX (4):
c. an **aspirator** operatively connected to said second channel of said hose
member and in fluid communication with said water outlet, said **aspirator** having
an outlet;

Claims Text - CLTX (5):
d. a product supply supplying said gun with product via said second channel
of said hose member, wherein said **aspirator** creates a use solution of product
diluted with water from said water outlet, said use solution exiting the outlet
of the **aspirator**;

Claims Text - CLTX (7):
f. a first valve in fluid communication with said water outlet and said
first nozzle and a second valve in fluid communication with said water outlet
and said **aspirator,** said first valve controlling flow of water via said first
channel and said second valve controlling flow of water via said first channel
through said **aspirator,** wherein said first valve allows water to flow from said
water outlet through said first nozzle, and wherein said

second valve allows
water to flow from said water outlet into said **aspirator** and said use solution
created therein to flow through said outlet of said **aspirator**.

Claims Text - CLTX (13):
7. The dispensing gun of claim 1, further comprising a third channel of
said hose member, a second **aspirator** operatively connected to said third
channel of said hose member and in fluid communication with said water outlet,
said second **aspirator** having an outlet, a second product supply supplying said
dispensing gun with a second product via said third channel of said hose member
wherein said second **aspirator** creates a use solution of second product diluted
with water from said water outlet, a third valve interconnecting said water
outlet and said second **aspirator** for controlling water via said first channel
and product via said third channel, said use solution is dispensed from said
outlet of said second **aspirator,** wherein said third valve allows water to flow
from said water outlet into said second **aspirator** and said use solution created
therein to flow through said outlet of said second **aspirator**.

Claims Text - CLTX (17):
c. an **aspirator** operatively connected to said outlet via said second
channel, said **aspirator** having a liquid diluent inlet, a liquid concentrate
inlet, and a dilute solution outlet;

Claims Text - CLTX (18):
d. a control device operatively connected to the **aspirator** for controlling
flow of liquid diluent from a source of liquid diluent to the liquid diluent
inlet;

Claims Text - CLTX (21):
g. a second valve in fluid communication with said outlet and said **aspirator**
for controlling flow of dilute solution through the dilute solution outlet.

Claims Text - CLTX (26):
13. The apparatus of claim 8, further comprising a third channel of said
hose member, a second **aspirator** operatively connected to said third channel of
said hose member and in fluid communication with said outlet, said second
aspirator having a dilute solution outlet, a second liquid concentrate
connected to said third channel of said hose member wherein said second
aspirator creates a use solution of second liquid concentrate diluted with
liquid diluent from said outlet, a third valve in fluid communication with said
outlet and said second **aspirator** for controlling the flow of liquid diluent via
said first channel and liquid concentrate via said third channel, wherein said
third valve allows liquid diluent to flow from said outlet into said second
aspirator and said dilute solution created therein to flow through said dilute
solution outlet.

Claims Text - CLTX (30):
c. an **aspirator** in fluid communication with said water outlet, said
aspirator having an outlet,

Claims Text - CLTX (31):
d. a product supply in fluid communication with said **aspirator, wherein said**
aspirator creates a use solution of product diluted with water from said water
outlet, said use solution exiting the outlet of the **aspirator**;

Claims Text - CLTX (33):
f. a first valve in fluid communication with said water outlet and said first nozzle and a second valve in fluid communication with said water outlet and said **aspirator,** said first valve controlling flow of water via said first channel and said second valve controlling flow of water via said first channel through said **aspirator,** wherein said first valve allows water to flow from said water outlet through said first nozzle, and wherein said second valve allows water to flow from said water outlet into said **aspirator** and said use solution created therein to flow through said outlet of said **aspirator**.

Claims Text - CLTX (34):
15. The dispensing gun of claim 14, wherein said hose member has a second channel to place said product supply in fluid communication with said **aspirator**.

Claims Text - CLTX (35):
16. The dispensing gun of claim 14, further comprising a third valve and a second product supply in fluid communication with a second **aspirator,** said second **aspirator** being in fluid communication with said water outlet and having an outlet, wherein said second **aspirator** creates a use solution of said second product supply diluted with water from said water outlet, said third valve interconnecting said water outlet and said second **aspirator** for controlling water via said first channel and second product, said use solution is dispensed from said outlet of said second **aspirator,** wherein said third valve allows water to flow from said water outlet into said second **aspirator** and said use solution created therein to flow through said outlet of said

second **aspirator**.

Current US Original Classification - CCOR (1):
239/310